

## ABSTRACT OF THE DISCLOSURE

A novel enzyme which has an activity to release side chain carboxyl groups and ammonia from a protein by acting upon side chain amido groups in the protein. This invention relates to a method for the production of an enzyme, which comprises culturing in a medium a strain that belongs to a bacterium classified into Cytophagales or Actinomycetes and has the ability to produce an enzyme having a property to deamidate amido groups in protein, thereby effecting production of said enzyme, and subsequently collecting said enzyme from the culture mixture. It also relates to a method for the modification of protein making use of a novel enzyme which directly acts upon amido groups in protein as well as to an enzyme which has a property to deamidate amido groups in protein and a gene which encodes said enzyme.